## Adopted Levels, Gammas

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | S. Ota and E. A. Mccutchan | NDS 203,1 (2025) | 1-Apr-2025 |

Q($\beta^-$)=600.8 *19*; S(n)=10646.5 *20*; S(p)=8486.2 *12*; Q($\alpha$)=−10186.4 *20* 2021Wa16
S(2n)=19407.2 *20*, S(2p)=22299.1 *20* (2021Wa16).

### $^{47}$Sc Levels

Cross Reference (XREF) Flags

| | | | | | |
|---|---|---|---|---|---|
| A | $^{47}$Ca $\beta^-$ decay | E | $^{45}$Sc(t,p) | I | $^{48}$Ti(d,$^3$He) |
| B | $^{36}$S($^{14}$C,p2n$\gamma$) | F | $^{46}$Ca(p,p),(p,p′),(p,$\gamma$) IAR | J | $^{48}$Ti(t,$\alpha$) |
| C | $^{44}$Ca($\alpha$,p$\gamma$) | G | $^{46}$Ca($^3$He,d) | K | $^{49}$Ti(d,$\alpha$) |
| D | $^{44}$Ca($\alpha$,p) | H | $^{48}$Ti($\mu^-$,n$\gamma$): At rest | L | $^{50}$Ti(p,$\alpha$) |

| E(level)[†] | J$^\pi$ | T$_{1/2}$ | XREF | Comments |
|---|---|---|---|---|
| 0.0 | 7/2$^-$ | 3.3492 d *6* | ABCDEFGHIJKL | %$\beta^-$=100<br>Q=−0.200 *6* (2022Ba15); $\mu$=+5.209 *2* (2022Ba15)<br>T=5/2<br>J$^\pi$: J=7/2 from atomic beam (1976Fu06,1966Co13); $\pi$=− from L(d,$^3$He)=L(d,$\alpha$)=3.<br>T$_{1/2}$: weighted average of 3.350 d *2* (2022Ab01), 3.341 d *2* (1980Mo26), 3.3483 d *6* ($\beta$(t), 1986Re12), 3.3491 d *19* ($\beta$(t), 1986Re12), 3.3478 d *10* ($\beta$(t), 1986Re12), 3.3525 d *15* (158$\gamma$(t), 1986Re12), 3.3480 d *31* (159$\gamma$(t), 1986Re12), and 3.3500 d *6* ($\gamma$(t), 1986Re12). Others: 3.345 d *3* (1968Me07) and 3.35 d *12* (2022Ko11).<br>Q: from collinear laser spectroscopy (2022Ba15). Other: −0.22 *3* (1966Co13).<br>$\mu$: from collinear laser spectroscopy (2022Ba15). Other: +5.34 *2* (1966Co13). |
| 766.83[#] *9* | (3/2)$^+$ | 272 ns *8* | A C FGHIJKL | $\mu$=0.35 *5* (1968Fo02,2020StZV)<br>J$^\pi$: from L=2 in (d,$^3$He), ($^3$He,d), and (t,$\alpha$). *J*$^\pi$=3/2$^+$ expected from shell model and supported by C$^2$S data.<br>T$_{1/2}$: weighted average of 270 ns *12* from $^{40}$Ca $\beta^-$ decay and 274 ns *10* from ($\alpha$,p$\gamma$).<br>$\mu$: 1968Fo02 using TDPAD technique. |
| 807.89 *8* | 3/2$^-$ | 15 ps *4* | A CDEFGHIJKL | J$^\pi$: from L=1 in ($^3$He,d), (d,$^3$He), (t,$\alpha$) and ($\alpha$,p). J=1/2 is excluded by 808$\gamma$ to 7/2$^-$.<br>T$_{1/2}$: from RDM in ($\alpha$,p$\gamma$). |
| 1145? *2* | | | IJK | E(level): could correspond to 1146.99 level, however, L transfer not consistent with the 11/2$^-$ assigned to the 1146.99 level. |
| 1146.99 *4* | 11/2$^-$ | 3.2 ps *11* | ABC EF L | J$^\pi$: 7/2 or 11/2 from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); linear polarization (1147$\gamma$) in ($\alpha$,p$\gamma$) selects 11/2. $\pi$=− from E2 $\gamma$ to g.s.<br>T$_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). Other: >0.83 ps from DSAM in ($^{14}$C,p2n$\gamma$). |
| 1297.12 *8* | 5/2$^-$ | 62 fs *21* | A C EF H JK | T=5/2<br>J$^\pi$: M1+E2 489$\gamma$ to 3/2$^-$; D+Q $\gamma$ to 7/2$^-$, L(t,p)=2.<br>T: From $\beta^-$ decay.<br>T$_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 1316? *3* | | | E | |
| 1391.3 *3* | 1/2$^+$ | 9 ps *3* | C FG IJ L | T$_{1/2}$: from RDM in ($\alpha$,p$\gamma$).<br>J$^\pi$: from L=0 in ($^3$He,d), (d,$^3$He), and (t,$\alpha$). |
| 1404.4[#] *3* | 5/2$^+$ | 0.97 ps *28* | C F H L | XREF: L(1427)<br>J$^\pi$: 5/2 from $\gamma(\theta)$ in ($\alpha$,p$\gamma$), M1+E2 637$\gamma$ to (3/2)$^+$. |

Continued on next page (footnotes at end of table)

## Adopted Levels, Gammas (continued)

### $^{47}$Sc Levels (continued)

| E(level)[†] | $J^\pi$ | $T_{1/2}$ | XREF | Comments |
|---|---|---|---|---|
| | | | | $T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 1637? *12* | | | K | |
| 1715? *12* | | | K | |
| 1743? *20* | | | K | |
| 1797.6 *3* | 3/2,5/2$^-$,7/2$^-$ | 0.21 ps *6* | C F k | $J^\pi$: 3/2,5/2,7/2 from $\gamma(\theta)$ in ($\alpha$,p$\gamma$). The latter two spin possibilities result in large mixing ratios, suggesting no parity change for 990$\gamma$ to 3/2$^-$.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 1798? *6* | 1/2$^+$ | | E Jk | $J^\pi$: from L=0 in (t,$\alpha$). |
| 1857.1 *3* | (7/2$^+$,5/2) | 0.30 ps *6* | C JKL | $J^\pi$: D+Q 1857$\gamma$ to 7/2$^-$, 1090$\gamma$ to (3/2)$^+$; $J^\pi$=7/2$^+$ favored if level is part of $K^\pi$=3/2$^+$ rotational band.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 1878.2 *7* | 9/2$^-$ | 0.12 ps *6* | A C EF | $J^\pi$: $\pi$=− from L(t,p)=2, D+Q 1878$\gamma$ to 7/2$^-$ and D+Q 732$\gamma$ to 11/2$^-$.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 2002.3 *3* | 3/2$^+$ | 0.40 ps *9* | C F IJ | $J^\pi$: from L(d,$^3$He),(t,$\alpha$)=2; $\gamma(\theta)$ in ($\alpha$,p$\gamma$) excludes 5/2.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 2144 *2* | | | E | |
| 2148.2 *5* | (15/2$^-$) | >2 ps | BC | $J^\pi$: (E2) 1001$\gamma$ to 11/2$^-$.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$); other: >4.2 ps from DSAM in ($^{14}$C,p2n$\gamma$). |
| 2207.5 *3* | (5/2$^-$,7/2$^-$) | 0.08 ps *4* | C EF J | $J^\pi$: this may be a close doublet with J≤7/2 for one member and ≥7/2 for the other. See ($\alpha$,p$\gamma$) for discussion.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 2232? *5* | 7/2$^-$ | | E | $J^\pi$: from L(t,p)=0+2. |
| 2381.3 *8* | 5/2$^+$ | <0.17 ps | C F IJ L | $J^\pi$: from L=2 in (d,$^3$He) and (t,$\alpha$), 2381$\gamma$ to 7/2$^-$.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 2408.6 *16* | 7/2$^-$,9/2 | 0.21 ps *11* | C ef | $J^\pi$: D+Q 2409$\gamma$ to 7/2$^-$, 1262$\gamma$ to 11/2$^-$.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 2410.3 *10* | (1/2,3/2,5/2) | | C ef | $J^\pi$: 1602$\gamma$ to 3/2$^-$, 1643$\gamma$ to (3/2)$^+$. |
| 2499.4 *7* | 7/2$^-$ | <0.15 ps | C EFG i | $T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$).<br>$J^\pi$: L(t,p)=0+2; D(+Q) 1202$\gamma$ to 5/2$^-$. |
| 2529.4 *9* | 1/2$^+$ | <0.21 ps | C F iJ | $J^\pi$: from L(t,$\alpha$)=0.<br>$T_{1/2}$: from DSAM in ($\alpha$,p$\gamma$). |
| 2641.9 *5* | (13/2,15/2,17/2) | 0.32 ps *6* | BC l | $J^\pi$: (13/2 to 17/2) in ($\alpha$,p$\gamma$), 13/2$^-$ is suggested in ($^{14}$C,p2n$\gamma$).<br>$T_{1/2}$: from DSAM in ($^{14}$C,p2n$\gamma$). Other: 0.40 ps *29* from DSAM in ($\alpha$,p$\gamma$). |
| 2650 *2* | | | EF l | E(level): from (p,p),(p,p′); other: 2647 *4* from (t,p). |
| 2810 *2* | 1/2$^-$,3/2$^-$ | | FG J | E(level): from (p,p),(p,p′); others: 2810 *5* from ($^3$He,d), 2806 *4* from (t,$\alpha$).<br>$J^\pi$: L($^3$He,d)=1. |
| 2836 *2* | 1/2$^-$,3/2$^-$ | | FG iJ | E(level): from (p,p),(p,p′); others: 2835 *5* from ($^3$He,d), 2831 *8* from (t,$\alpha$).<br>$J^\pi$: L($^3$He,d)=1. |
| 2909 *2* | | | D F iJ | $J^\pi$: 3/2$^-$ proposed in ($\alpha$,p) based on empirical J dependence, not adopted by evaluators.<br>E(level): from (p,p),(p,p′); others: 2910 from ($\alpha$,t), 2900 *3* from (t,$\alpha$). |
| 2941 *2* | | | EF | E(level): from (p,p),(p,p′); other: 2940 *4* from ($\alpha$,t). |
| 3070 *7* | | | E l | |
| 3102 *2* | − | | E l | E(level): from (t,p).<br>$J^\pi$: from L(t,p)=2. |
| 3131 *4* | − | | EFG J | E(level): from (t,p); others: 3133 *4* from (p,p),(p,p′), 3135 *10* from (p,p),(p,p′), 3135 *8* from (t,$\alpha$).<br>$J^\pi$: from L(t,p)=2+4. |

Continued on next page (footnotes at end of table)

## Adopted Levels, Gammas (continued)

### $^{47}$Sc Levels (continued)

| E(level)[†] | $J^\pi$ | $T_{1/2}$ | XREF | Comments |
|---|---|---|---|---|
| 3202 *2* | 1/2⁻,3/2⁻ | | EFG J | E(level): from (t,p). Others: 3205 *2* from (p,p),(p,p′), 3208 *5* from ($^3$He,d), and 3201 *4* from (t,α).<br>$J^\pi$: from L($^3$He,d)=1, L(t,α)=1. |
| 3250 *5* | 7/2⁻ | | E g i | E(level): from (t,p).<br>$J^\pi$: from L(t,p)=0+2. |
| 3256 *3* | 1/2⁻,3/2⁻ | | g iJ | $J^\pi$: from L(t,α)=1. |
| 3262 *2* | | | Fg i | E(level): from (p,p),(p,p′). |
| 3290 *2* | | | F i | E(level): from (p,p),(p,p′). |
| 3302.5 *10* | | 0.07 ps *3* | B | $J^\pi$: 17/2 speculated in ($^{14}$C,p2nγ), not adopted by evaluators.<br>$T_{1/2}$: from DSAM in ($^{14}$C,p2nγ). |
| 3320 | | | D | $J^\pi$: 3/2⁻ proposed in (α,p), based on empirical J dependence, not adopted by evaluators. |
| 3413 *2* | ⁻ | | E | $J^\pi$: from L(t,p)=2. |
| 3484 *4* | ⁻ | | E L | $J^\pi$: from L(t,p)=2. |
| 3537 *4* | 7/2⁻ | | E | $J^\pi$: from L(t,p)=0+2. |
| 3576 *2* | | | EF | E(level): from (p,p),(p,p′). Other: 3571 *9* from (t,p). |
| 3656? *2* | | | E | |
| 3728 *2* | | | F | |
| 3804 *4* | 3/2⁺,5/2⁺ | | J l | $J^\pi$: from L(t,α)=2. |
| 3860 *5* | 1/2⁺ | | iJ l | $J^\pi$: from L(t,α)=0. |
| 3867.0 *11* | | 0.21 ps *6* | B | $J^\pi$: 19/2 speculated in ($^{14}$C,p2nγ) not adopted by evaluators.<br>$T_{1/2}$: from DSAM in ($^{14}$C,p2nγ). |
| 3958 *5* | 3/2⁺,5/2⁺ | | iJ | $J^\pi$: from L(t,α)=2. |
| 4008 *6* | ⁻ | | E i | $J^\pi$: from L(t,p)=2. |
| 4019 *2* | | | F iJ | E(level): from (p,p),(p,p′). Other: 4014 *5* from (t,α). |
| 4031 *5* | 5/2⁻,7/2⁻ | | G J | E(level): from (t,α). Other: 4027 *5* from ($^3$He,d).<br>$J^\pi$: from L(t,α)=3. |
| 4085 *2* | 3/2⁻ | | EFG J | $J^\pi$: from L(t,p)=1 and L($^3$He,d)=1.<br>E(level): from (t,p). Others: 4090 *5* from ($^3$He,d) and 4081 *5* from (t,α). |
| 4099 *2* | | | Fg | |
| 4111 *3* | | | E g | |
| 4191 *2* | | | E | |
| 4257 *3* | | | E | |
| 4275 *5* | 1/2⁻,3/2⁻ | | G | $J^\pi$: from L($^3$He,d)=1. |
| 4289 *6* | | | E iJ | E(level): from (t,p). Other: 4291 *7* from (t,α). |
| 4355 *2* | 7/2⁻ | | E | $J^\pi$: from L(t,p)=0+2. |
| 4378 *5* | 1/2⁻,3/2⁻ | | G | $J^\pi$: from L($^3$He,d)=1. |
| 4389 *5* | | | G iJ | E(level): from (t,α). Other: 4396 *5* from ($^3$He,d). |
| 4408 *2* | | | F i | |
| 4473 *2* | | | EF i | E(level): from (t,p). Other: 4475 *2* from (p,p),(p,p′). |
| 4505 *9* | | | J | |
| 4515 *5* | 1/2⁻,3/2⁻ | | G | $J^\pi$: from L($^3$He,d)=1. |
| 4553 *2* | 3/2⁺,5/2⁺ | | EF iJ | E(level): from (p,p),(p,p′). Others: 4564 *4* from (t,p), 4561 *6* from (t,α).<br>$J^\pi$: from L(t,α)=2. |
| 4609 *2* | 1/2⁺ | | FG J | E(level): from (p,p),(p,p′). Others: 4610 *5* from ($^3$He,d), 4614 *6* from (t,α).<br>$J^\pi$: from L($^3$He,d)=L(t,α)=0. |
| 4617 *3* | 7/2⁻ | | E | $J^\pi$: from L(t,p)=0+2. |
| 4631 *2* | 1/2⁻,3/2⁻ | | FG | E(level): from (p,p),(p,p′). Other: 4633 *5* from ($^3$He,d).<br>$J^\pi$: from L($^3$He,d)=1. |
| 4690 *2* | | | EF iJ | E(level): from (p,p),(p,p′). Others: 4685 *4* from (t,p), 4687 *7* from (t,α). |
| 4721 *2* | | | EF i | E(level): from (p,p),(p,p′). Other: 4725 *5* from (t,p). |
| 4753 *7* | | | iJ | |
| 4792 *2* | | | F | |
| 4802? *2* | | | F | |

Continued on next page (footnotes at end of table)

## Adopted Levels, Gammas (continued)

### $^{47}$Sc Levels (continued)

| E(level)[†] | $J^\pi$ | XREF | Comments |
|---|---|---|---|
| 4810 *5* | 7/2⁻ | E | $J^\pi$: from L(t,p)=0+2. |
| 4817 *5* | 3/2⁺,5/2⁺ | G | $J^\pi$: from L($^3$He,d)=2. |
| 4831 *2* | | F | |
| 4860 *7* | | E J | E(level): from (t,α). Other: 4863 *5* from (t,p). |
| 4908 *10* | 5/2⁻,7/2⁻ | G | $J^\pi$: from L($^3$He,d)=3. |
| 4956 *2* | | EF | E(level): from (p,p),(p,p′). Other: 4965 *6* from (t,p). |
| 4998 *2* | | F J | E(level): from (p,p),(p,p′). Other: 4996 *9* from (t,α). |
| 5030 *10* | 1/2⁻,3/2⁻ | G | $J^\pi$: from L($^3$He,d)=1. |
| 5050 *8* | | E | |
| 5108 *6* | | E J | E(level): from (t,α). Other: 5105 *4* from (t,p). |
| 5151 *2* | ⁻ | EF | E(level): from (p,p),(p,p′). Other: 5156 *3* from (t,p).<br>$J^\pi$: from L(t,p)=2. |
| 5252 *3* | | E | |
| 5306 *5* | | J | |
| 5317 *7* | 7/2⁻ | E | $J^\pi$: from L(t,p)=0+2. |
| 5319 *10* | 1/2⁻,3/2⁻ | G | $J^\pi$: from L($^3$He,d)=1. |
| 5361 *5* | | J | |
| 5381 *3* | 7/2⁻ | E | $J^\pi$: from L(t,p)=0+2. |
| 5415 *10* | 1/2⁻,3/2⁻ | G | $J^\pi$: from L($^3$He,d)=1. |
| 5473 *5* | | E | |
| 5509 *2* | | EF | E(level): from (p,p),(p,p′). Other: 5508 *8* from (t,p). |
| 5525 *10* | 1/2⁻,3/2⁻ | G | $J^\pi$: from L($^3$He,d)=1. |
| 5542 *6* | | J | |
| 5561 *4* | 7/2⁻ | E | $J^\pi$: from L(t,p)=0. |
| 5571 *7* | (1/2⁻,3/2⁻) | G J L | E(level): from (t,α). Other: 5578 *5* from ($^3$He,d).<br>$J^\pi$: from L(t,α)=(1). |
| 5600 *2* | | F i | |
| 5659 *6* | | iJ | |
| 5685 *4* | | E i | |
| 5719 *4* | | E G i | E(level): from (t,p). Other: 5705 *10* from ($^3$He,d). |
| 5760 *6* | | E iJ l | E(level): from (t,α). Other: 5767 *4* from (t,p). |
| 5824 *2* | 1/2⁻,3/2⁻ | E G l | E(level): from (t,p). Other: 5840 *15* from ($^3$He,d).<br>$J^\pi$: from L($^3$He,d)=1. |
| 5855 *3* | | E i | |
| 5893 *4* | ⁻ | E | $J^\pi$: from L(t,p)=2. |
| 5946 *4* | (3/2⁺,5/2⁺) | E G iJ | E(level): from (t,p). Other: 5945 *10* from ($^3$He,d), 5923 *9* from (t,α).<br>$J^\pi$: from L(t,α)=(2). |
| 5987 *9* | | J L | |
| 6010 *6* | 7/2⁻ | E j | $J^\pi$: from L(t,p)=0+2. |
| 6040 *10* | 3/2⁺,5/2⁺ | G ij | $J^\pi$: from L($^3$He,d)=2. |
| 6096 *5* | 7/2⁻ | E | $J^\pi$: from L(t,p)=0. |
| 6133 *9* | | E i | |
| 6184 *3* | | E i | |
| 6223 *5* | | E iJ | E(level): from (t,α). Other: 6216 *8* from (t,p). |
| 6269 *3* | 7/2⁻ | E G J | E(level): from (t,p). Others: 6278 *10* from ($^3$He,d), and 6262 *8* from (t,α).<br>$J^\pi$: from L(t,p)=0+2. |
| 6339 *3* | | E i | |
| 6361 *4* | | E i | |
| 6383 *2* | | F i | |
| 6410 *2* | | E i | |
| 6448 *4* | | E iJ | E(level): from (t,p). Other: 6441 *6* from (t,α). |
| 6486 *3* | | E g i | |
| 6523 *5* | | g J | |
| 6546 *5* | | E i | |
| 6584 *2* | | F i | |

Continued on next page (footnotes at end of table)

## Adopted Levels, Gammas (continued)

### $^{47}$Sc Levels (continued)

| E(level)[†] | $J^\pi$ | XREF | Comments |
|---|---|---|---|
| 6621 *8* | | E iJ L | E(level): from (t,$\alpha$). Others: 6609 *8* from (t,p), 6630 from (p,$\alpha$). |
| 6686 *7* | | E | |
| 6724 *2* | | F | |
| 6786 *7* | | J | |
| 6801 *4* | | E i | |
| 6863 *3* | | E i | |
| 6876 *6* | | iJ | |
| 6964 *5* | | iJ | |
| 7117 *5* | | iJ | |
| 7427 *6* | | iJ | |
| 7523 *10* | 1/2$^-$,3/2$^-$ | G | $J^\pi$: from L($^3$He,d)=1. |
| 7683 *7* | | iJ | |
| 7807 *5* | | J | |
| 8.40×10$^3$ | (7/2$^-$) | L | T=(7/2)<br>$J^\pi$,T: identified by the evaluators as possible IAS of $^{47}$Ca g.s. |
| 10287.0 *23* | | F | $\Gamma_\gamma$=0.40 *25*; $\Gamma_p$=100 *20*<br>Ep=1839.9 *20*. |
| 10294.9 *23* | | F | $\Gamma_\gamma$=0.20 *10*; $\Gamma_p$=20 *10*<br>Ep=1848.0 *20*. |
| 10299.7 *23* | | F | $\Gamma_\gamma$=0.17 *25*; $\Gamma_p$=90 *30*<br>Ep=1852.9 *20*. |
| 10303.9 *23* | | F | $\Gamma_\gamma$=0.16 *25*; $\Gamma_p$=20 *10*<br>Ep=1857.2 *20*. |
| 10305.1 *23* | (3/2$^-$)[‡] | F | T=7/2; $\Gamma_\gamma$=0.50 *30*; $\Gamma_p$=150 *40*<br>Ep=1858.4 *20*. |
| 10306.0 *2* | | F | $\Gamma_\gamma$=0.09 *20*; $\Gamma_p$=30 *20*<br>Ep=1848.0 *20*. |
| 10307.5 *23* | (3/2$^-$)[‡] | F | T=7/2; $\Gamma_\gamma$=1.36 *55*; $\Gamma_p$=600 *60*<br>Ep=1860.9 *20*. |
| 10308.6 *23* | | F | $\Gamma_\gamma$=0.14 *20*; $\Gamma_p$=80 *40*<br>Ep=1862.0 *20*. |
| 10310.0 *23* | (3/2$^-$)[‡] | F | T=7/2; $\Gamma_\gamma$=1.22 *50*; $\Gamma_p$=400 *50*<br>Ep=1863.4 *20*. |
| 10317.3 *23* | | F | $\Gamma_\gamma$=0.43 *25*; $\Gamma_p$=70 *30*<br>Ep=1870.9 *20*. |
| 10319.8 *23* | | F | $\Gamma_\gamma$=0.43 *25*; $\Gamma_p$=130 *30*<br>Ep=1873.5 *20*. |
| 10323.6 *23* | | F | $\Gamma_\gamma$=0.27 *15*; $\Gamma_p$=50 *20*<br>Ep=1877.3 *20*. |
| 10342.0 *23* | | F | $\Gamma_\gamma$=0.34 *35*; $\Gamma_p$=100 *20*<br>Ep=1896.1 *20*. |

[†] From a least-squares fit to E$\gamma$, for levels connected by $\gamma$-rays, except where noted. For levels seen only in particle transfer, source is indicated, except in cases where level is uniquely identified in single reaction.

[‡] L=1 and primary $\gamma$-deexcitation pattern in (p,p),(p,p′),(p,$\gamma$). Component of IAS of 2.02-MeV state in $^{47}$Ca.

[#] Band(A): Possible $K^\pi$=3/2$^+$ rotational band.

## $\gamma(^{47}Sc)$

Additional information 1.

| $E_i$(level) | $J^\pi_i$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J^\pi_f$ | Mult. | $\delta$ | $\alpha$[@] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 766.83 | (3/2)$^+$ | 767.1[‡] *3* | 100[‡] | 0.0 | 7/2$^-$ | [M2] | | $3.34\times10^{-4}$ *5* | $\alpha$(K)=0.000304 *4*; $\alpha$(L)=$2.69\times10^{-5}$ *4*; $\alpha$(M)=$3.33\times10^{-6}$ *5*; $\alpha$(N)=$1.868\times10^{-7}$ *26*<br>B(M2)(W.u.)=0.0330 *10* |
| 807.89 | 3/2$^-$ | 41.06[‡] *5* | 0.094[‡] *9* | 766.83 | (3/2)$^+$ | [E1] | | 0.399 *6* | $\alpha$(K)=0.363 *5*; $\alpha$(L)=0.0321 *5*; $\alpha$(M)=0.00392 *6*; $\alpha$(N)=0.0002052 *30*<br>B(E1)(W.u.)=0.00047 *+18−11* |
| | | 807.86[‡] *10* | 100.0[‡] *7* | 0.0 | 7/2$^-$ | [E2] | | $1.83\times10^{-4}$ *3* | $\alpha$(K)=0.0001667 *23*; $\alpha$(L)=$1.467\times10^{-5}$ *21*; $\alpha$(M)=$1.817\times10^{-6}$ *25*; $\alpha$(N)=$1.015\times10^{-7}$ *14*<br>B(E2)(W.u.)=10.9 *+40−23* |
| 1146.99 | 11/2$^-$ | 1146.97[#] *4* | 100[#] | 0.0 | 7/2$^-$ | E2 | | $7.98\times10^{-5}$ *11* | $\alpha$(K)=$6.96\times10^{-5}$ *10*; $\alpha$(L)=$6.10\times10^{-6}$ *9*; $\alpha$(M)=$7.57\times10^{-7}$ *11*; $\alpha$(N)=$4.24\times10^{-8}$ *6*<br>B(E2)(W.u.)=8.8 *+46−23*<br>Mult.: Q from $\gamma(\theta)$ in ($^{14}$C,p2n$\gamma$) and ($\alpha$,p$\gamma$); M2 excluded by comparison to RUL. |
| 1297.12 | 5/2$^-$ | 489.23[‡] *10* | 9.53[‡] *7* | 807.89 | 3/2$^-$ | M1+E2 | −0.21 *4* | $3.66\times10^{-4}$ *9* | $\alpha$(K)=0.000333 *9*; $\alpha$(L)=$2.94\times10^{-5}$ *8*; $\alpha$(M)=$3.64\times10^{-6}$ *9*; $\alpha$(N)=$2.04\times10^{-7}$ *5*<br>B(M1)(W.u.)=0.25 *+13−7*; B(E2)(W.u.)=$1.2\times10^{2}$ *+8−5*<br>Mult.,$\delta$: from $\gamma\gamma(\theta)$ and pol in $^{47}$Ca $\beta^-$ decay.<br>$I_\gamma$: other: 11 *4* in ($\alpha$,p$\gamma$). |
| | | 530.6[‡] *5* | 0.139[‡] *9* | 766.83 | (3/2)$^+$ | [E1] | | $1.88\times10^{-4}$ *3* | $\alpha$(K)=0.0001710 *24*; $\alpha$(L)=$1.500\times10^{-5}$ *21*; $\alpha$(M)=$1.858\times10^{-6}$ *26*; $\alpha$(N)=$1.039\times10^{-7}$ *15*<br>B(E1)(W.u.)=$7.1\times10^{-5}$ *+36−19* |
| | | 1297.09[‡] *10* | 100.0[‡] *7* | 0.0 | 7/2$^-$ | M1+E2 | −0.020 *16* | $6.82\times10^{-5}$ *10* | $\alpha$(K)=$4.40\times10^{-5}$ *6*; $\alpha$(L)=$3.85\times10^{-6}$ *5*; $\alpha$(M)=$4.78\times10^{-7}$ *7*; $\alpha$(N)=$2.69\times10^{-8}$ *4*<br>B(M1)(W.u.)=0.15 *+7−4*; B(E2)(W.u.)=0.09 *+23−8*<br>Mult.,$\delta$: D+Q from $\beta\gamma$-CP in $\beta^-$ decay, $\Delta\pi$=no from level scheme. |
| 1391.3 | 1/2$^+$ | 583.2 | 100 *5* | 807.89 | 3/2$^-$ | [E1] | | $1.49\times10^{-4}$ *2* | $\alpha$(K)=0.0001355 *19*; $\alpha$(L)=$1.189\times10^{-5}$ *17*; $\alpha$(M)=$1.472\times10^{-6}$ *21*; $\alpha$(N)=$8.24\times10^{-8}$ *12*<br>B(E1)(W.u.)=0.00025 *+12−6* |
| | | 623.8 | 16 *5* | 766.83 | (3/2)$^+$ | | | | |
| 1404.4 | 5/2$^+$ | 596.4 | 12 *3* | 807.89 | 3/2$^-$ | [E1] | | $1.41\times10^{-4}$ *2* | $\alpha$(K)=0.0001284 *18*; $\alpha$(L)=$1.126\times10^{-5}$ *16*; $\alpha$(M)=$1.395\times10^{-6}$ *20*; $\alpha$(N)=$7.81\times10^{-8}$ *11*<br>B(E1)(W.u.)=$2.2\times10^{-4}$ *+10−7* |
| | | 637.0 | 29 *3* | 766.83 | (3/2)$^+$ | M1+E2 | −0.72 *28* | $2.52\times10^{-4}$ *29* | $\alpha$(K)=0.000229 *27*; $\alpha$(L)=$2.02\times10^{-5}$ *24*; |



From ENSDF

$^{47}_{21}Sc_{26}$-6

$\gamma(^{47}Sc)$ (continued)

| $E_i$(level) | $J^\pi_i$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J^\pi_f$ | Mult. | $\delta$ | $\alpha$[@] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $\alpha$(M)=2.50×10$^{-6}$ *29*; $\alpha$(N)=1.40×10$^{-7}$ *16*<br>B(M1)(W.u.)=0.012 *+6−4*; B(E2)(W.u.)=39 *+25−21*<br>Mult.: D(+Q) from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); E1+M2 excluded by comparison to RUL. |
| 1404.4 | 5/2$^+$ | 1404.4 | 100 *4* | 0.0 | 7/2$^-$ | (E1) | | 2.18×10$^{-4}$ *3* | $\alpha$(K)=2.283×10$^{-5}$ *32*; $\alpha$(L)=1.996×10$^{-6}$ *28*; $\alpha$(M)=2.474×10$^{-7}$ *35*; $\alpha$(N)=1.391×10$^{-8}$ *19*<br>B(E1)(W.u.)=1.4×10$^{-4}$ *+5−3*<br>Mult.: D(+Q) from $\gamma(\theta)$ in ($\alpha$,p$\gamma$) and comparison to RUL. $\Delta\pi$=yes from level scheme.<br>$\delta$: −0.04 *8* from $\gamma(\theta)$ in ($\alpha$,p$\gamma$). |
| 1797.6 | 3/2,5/2$^-$,7/2$^-$ | 500.6 | 92 *14* | 1297.12 | 5/2$^-$ | | | | |
| | | 989.6 | 100 *14* | 807.89 | 3/2$^-$ | D,Q | | | Mult.,$\delta$: from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); see dataset for $\delta'$s for each spin possibility. |
| 1857.1 | (7/2$^+$,5/2) | 452.7 | 2.2 *17* | 1404.4 | 5/2$^+$ | | | | |
| | | 1089.7 | 10 *5* | 766.83 | (3/2)$^+$ | | | | |
| | | 1857.1 | 100 *5* | 0.0 | 7/2$^-$ | D+Q | | | Mult.,$\delta$: from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); see dataset for $\delta'$s for each spin possibility. |
| 1878.2 | 9/2$^-$ | 581.2[&] | | 1297.12 | 5/2$^-$ | | | | |
| | | 731.6 | 45 *6* | 1146.99 | 11/2$^-$ | (M1+E2) | −0.14 *11* | 1.49×10$^{-4}$ *4* | $\alpha$(K)=0.000136 *4*; $\alpha$(L)=1.194×10$^{-5}$ *34*; $\alpha$(M)=1.48×10$^{-6}$ *4*; $\alpha$(N)=8.31×10$^{-8}$ *23*<br>B(M1)(W.u.)=0.14 *+12−5*; B(E2)(W.u.)=13 *+35−12*<br>transitions strengths are calculated assuming the I$\gamma$(581$\gamma$) is negligible.<br>Mult.,$\delta$: D+Q from $\gamma(\theta)$ in ($\alpha$,p$\gamma$), $\Delta\pi$=no from level scheme. |
| | | 1878.0[‡] *5* | 100 *6* | 0.0 | 7/2$^-$ | (M1+E2) | −0.14 *9* | 2.25×10$^{-4}$ *4* | $\alpha$(K)=2.290×10$^{-5}$ *33*; $\alpha$(L)=2.001×10$^{-6}$ *29*; $\alpha$(M)=2.48×10$^{-7}$ *4*; $\alpha$(N)=1.398×10$^{-8}$ *20*<br>B(M1)(W.u.)=0.019 *+15−7*; B(E2)(W.u.)=0.3 *+6−2*<br>transitions strengths are calculated assuming the I$\gamma$(581$\gamma$) is negligible.<br>Mult.,$\delta$: D+Q from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); $\Delta\pi$=no from level scheme. |
| 2002.3 | 3/2$^+$ | 597.9 | 38 *10* | 1404.4 | 5/2$^+$ | | | | |
| | | 705.3 | 34 *10* | 1297.12 | 5/2$^-$ | [E1] | | 9.56×10$^{-5}$ *13* | $\alpha$(K)=8.70×10$^{-5}$ *12*; $\alpha$(L)=7.62×10$^{-6}$ *11*; $\alpha$(M)=9.45×10$^{-7}$ *13*; $\alpha$(N)=5.29×10$^{-8}$ *7*<br>B(E1)(W.u.)=0.00073 *+30−23* |
| | | 1194.3 | 100 *14* | 807.89 | 3/2$^-$ | E1 | | 8.47×10$^{-5}$ *12* | $\alpha$(K)=3.02×10$^{-5}$ *4*; $\alpha$(L)=2.64×10$^{-6}$ *4*; |



From ENSDF

$^{47}_{21}Sc_{26}$-7

$\gamma(^{47}Sc)$ (continued)

| $E_i$(level) | $J^\pi_i$ | $E_\gamma$[†] | $I_\gamma$[†] | $E_f$ | $J^\pi_f$ | Mult. | $\delta$ | $\alpha$[@] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $\alpha$(M)=3.27×10$^{-7}$ *5*; $\alpha$(N)=1.840×10$^{-8}$ *26*<br>B(E1)(W.u.)=0.00044 *+14−9*<br>Mult.: D(+Q) from $\gamma(\theta)$ in ($\alpha$,p$\gamma$). $\Delta\pi$=yes from level scheme.<br>$\delta$: 0.00 *18* from $\gamma(\theta)$ in ($\alpha$,p$\gamma$). Comparison to RUL and $\Delta J^\pi$ limits $\delta$ to <0.03. |
| 2148.2 | (15/2$^-$) | 1001.2[#] *5* | 100[#] | 1146.99 | 11/2$^-$ | (E2) | | 1.06×10$^{-4}$ *2* | $\alpha$(K)=9.61×10$^{-5}$ *13*; $\alpha$(L)=8.44×10$^{-6}$ *12*; $\alpha$(M)=1.045×10$^{-6}$ *15*; $\alpha$(N)=5.85×10$^{-8}$ *8*<br>Mult.: Q from $\gamma(\theta)$ in ($^{14}$C,p2n$\gamma$). Other: Q+(O) with $\delta$=+0.10 *13* in ($\alpha$,p$\gamma$). |
| 2207.5 | (5/2$^-$,7/2$^-$) | 329.3 | 16 *9* | 1878.2 | 9/2$^-$ | | | | |
| | | 910.5 | 20 *14* | 1297.12 | 5/2$^-$ | | | | |
| | | 1399.5 | 100 *34* | 807.89 | 3/2$^-$ | | | | |
| | | 2207.5 | 91 *23* | 0.0 | 7/2$^-$ | | | | |
| 2381.3 | 5/2$^+$ | 1573.0 | 41 *27* | 807.89 | 3/2$^-$ | [E1] | | 3.42×10$^{-4}$ *5* | $\alpha$(K)=1.898×10$^{-5}$ *27*; $\alpha$(L)=1.658×10$^{-6}$ *23*; $\alpha$(M)=2.056×10$^{-7}$ *29*; $\alpha$(N)=1.156×10$^{-8}$ *16* |
| | | 1613.9 | 100 *23* | 766.83 | (3/2)$^+$ | | | | |
| | | 2381.3 | 86 *23* | 0.0 | 7/2$^-$ | [E1] | | 9.05×10$^{-4}$ *13* | $\alpha$(K)=1.027×10$^{-5}$ *14*; $\alpha$(L)=8.96×10$^{-7}$ *13*; $\alpha$(M)=1.111×10$^{-7}$ *16*; $\alpha$(N)=6.26×10$^{-9}$ *9* |
| 2408.6 | 7/2$^-$,9/2 | 1262 | 32 *6* | 1146.99 | 11/2$^-$ | | | | |
| | | 2409 | 100 *6* | 0.0 | 7/2$^-$ | D+Q | | | $\delta$: see ($\alpha$,p$\gamma$) for $\delta$'s for different possible spin assignments. |
| 2410.3 | (1/2,3/2,5/2) | 1602 | 100 *30* | 807.89 | 3/2$^-$ | | | | |
| | | 1643 | 64 *30* | 766.83 | (3/2)$^+$ | | | | |
| 2499.4 | 7/2$^-$ | 621.2 | 40 *10* | 1878.2 | 9/2$^-$ | | | | |
| | | 1202.4 | 100 *12* | 1297.12 | 5/2$^-$ | (M1(+E2)) | −0.05 *8* | 6.23×10$^{-5}$ *9* | $\alpha$(K)=5.07×10$^{-5}$ *7*; $\alpha$(L)=4.44×10$^{-6}$ *6*; $\alpha$(M)=5.51×10$^{-7}$ *8*; $\alpha$(N)=3.10×10$^{-8}$ *4*<br>Mult.: D(+Q) from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); $\Delta\pi$=no from level scheme. |
| | | 2499.4 | 52 *10* | 0.0 | 7/2$^-$ | (M1(+E2)) | +0.54 *65* | 4.99×10$^{-4}$ *35* | $\alpha$(K)=1.44×10$^{-5}$ *4*; $\alpha$(L)=1.262×10$^{-6}$ *32*; $\alpha$(M)=1.56×10$^{-7}$ *4*; $\alpha$(N)=8.82×10$^{-9}$ *22*<br>Mult.: D(+Q) from $\gamma(\theta)$ in ($\alpha$,p$\gamma$); $\Delta\pi$=no from level scheme. |
| 2529.4 | 1/2$^+$ | 1721 | 100 *18* | 807.89 | 3/2$^-$ | [E1] | | 4.54×10$^{-4}$ *6* | $\alpha$(K)=1.649×10$^{-5}$ *23*; $\alpha$(L)=1.440×10$^{-6}$ *20*; $\alpha$(M)=1.785×10$^{-7}$ *25*; $\alpha$(N)=1.004×10$^{-8}$ *14* |
| | | 1762 | 45 *18* | 766.83 | (3/2)$^+$ | | | | |
| 2641.9 | (13/2,15/2,17/2) | 493.66[#] *10* | 100[#] *5* | 2148.2 | (15/2$^-$) | D(+Q) | | | $\delta$: 0.00 *6* from $\gamma(\theta)$ in ($^{14}$C,p2n$\gamma$) if $J_i$=13/2 and $J_f$=15/2.<br>Mult.: D+Q from $\gamma(\theta)$ in ($^{14}$C,p2n$\gamma$) and ($\alpha$,p$\gamma$). |
| | | 763.0[#&] | <32[#] | 1878.2 | 9/2$^-$ | | | | |





$^{47}_{21}Sc_{26}$-8

$\gamma(^{47}Sc)$ (continued)

| $E_i$(level) | $J^\pi_i$ | $E_\gamma$ † | $I_\gamma$ † | $E_f$ | $J^\pi_f$ |
|---|---|---|---|---|---|
| 2641.9 | (13/2,15/2,17/2) | 1494.9#& | <117# | 1146.99 | $11/2^-$ |
| 3302.5 | | 1154.3# *9* | 100# | 2148.2 | $(15/2^-)$ |
| 3867.0 | | 564.46# *30* | 100# | 3302.5 | |
| 10305.1 | $(3/2^-)$ | 3576 | 64 | 6724 | |
| | | 3716 | 39 | 6584 | |
| | | 3917 | 45 | 6383 | |
| | | 4700 | 43 | 5600 | |
| | | 4791 | 27 | 5509 | |
| | | 5149 | 27 | 5151 | $^-$ |
| | | 5302 | 34 | 4998 | |
| | | 5344 | 36 | 4956 | |
| | | 5469 | 11 | 4831 | |
| | | 5579 | 61 | 4721 | |
| | | 5610 | 18 | 4690 | |
| | | 5691 | 41 | 4609 | $1/2^+$ |
| | | 5747 | 100 | 4553 | $3/2^+,5/2^+$ |
| | | 5825 | 14 | 4473 | |
| | | 6202 | 14 | 4099 | |
| | | 6216 | 20 | 4085 | $3/2^-$ |
| | | 6282 | 27 | 4019 | |
| | | 6572 | 20 | 3728 | |
| | | 6724 | 41 | 3576 | |
| | | 7010 | 25 | 3290 | |
| | | 7038 | 14 | 3262 | |
| | | 7095 | 27 | 3202 | $1/2^-,3/2^-$ |
| | | 7167 | 64 | 3131 | $^-$ |
| | | 7358 | 34 | 2941 | |
| | | 7390 | 23 | 2909 | |
| | | 7464 | 48 | 2836 | $1/2^-,3/2^-$ |
| | | 7490 | 34 | 2810 | $1/2^-,3/2^-$ |
| | | 8094 | 27 | 2207.5 | $(5/2^-,7/2^-)$ |
| | | 8298 | 14 | 2002.3 | $3/2^+$ |
| | | 8502 | 48 | 1797.6 | $3/2,5/2^-,7/2^-$ |
| | | 8895 | 41 | 1404.4 | $5/2^+$ |
| | | 8910 | 23 | 1391.3 | $1/2^+$ |
| | | 9003 | 73 | 1297.12 | $5/2^-$ |
| | | 9491 | 20 | 807.89 | $3/2^-$ |
| | | 9532 | 18 | 766.83 | $(3/2)^+$ |
| | | 10299 | 23 | 0.0 | $7/2^-$ |
| 10307.5 | $(3/2^-)$ | 3578 | 10 | 6724 | |
| | | 3718 | 4 | 6584 | |





From ENSDF

$^{47}_{21}Sc_{26}$-9

$\gamma(^{47}Sc)$ (continued)

| $E_i$(level) | $J^\pi_i$ | $E_\gamma$† | $I_\gamma$† | $E_f$ | $J^\pi_f$ |
|---|---|---|---|---|---|
| 10307.5 | (3/2⁻) | 3919 | 24 | 6383 | |
| | | 4702 | 19 | 5600 | |
| | | 4793 | 15 | 5509 | |
| | | 5151 | 20 | 5151 | − |
| | | 5304 | 65 | 4998 | |
| | | 5346 | 10 | 4956 | |
| | | 5471 | 15 | 4831 | |
| | | 5500 | 13 | 4802? | |
| | | 5510 | 16 | 4792 | |
| | | 5581 | 10 | 4721 | |
| | | 5612 | 13 | 4690 | |
| | | 5671 | 7 | 4631 | 1/2⁻,3/2⁻ |
| | | 5693 | 15 | 4609 | 1/2⁺ |
| | | 5827 | 4 | 4473 | |
| | | 5895 | 3 | 4408 | |
| | | 6204 | 9 | 4099 | |
| | | 6218 | 5 | 4085 | 3/2⁻ |
| | | 6284 | 17 | 4019 | |
| | | 6726 | 6 | 3576 | |
| | | 7012 | 10 | 3290 | |
| | | 7097 | 12 | 3202 | 1/2⁻,3/2⁻ |
| | | 7169 | 12 | 3131 | − |
| | | 7361 | 25 | 2941 | |
| | | 7393 | 8 | 2909 | |
| | | 7466 | 7 | 2836 | 1/2⁻,3/2⁻ |
| | | 7492 | 4 | 2810 | 1/2⁻,3/2⁻ |
| | | 7652 | 14 | 2650 | |
| | | 7774 | 12 | 2529.4 | 1/2⁺ |
| | | 7802 | 7 | 2499.4 | 7/2⁻ |
| | | 8096 | 9 | 2207.5 | (5/2⁻,7/2⁻) |
| | | 8300 | 13 | 2002.3 | 3/2⁺ |
| | | 8505 | 40 | 1797.6 | 3/2,5/2⁻,7/2⁻ |
| | | 8897 | 10 | 1404.4 | 5/2⁺ |
| | | 8912 | 56 | 1391.3 | 1/2⁺ |
| | | 9005 | 11 | 1297.12 | 5/2⁻ |
| | | 9494 | 28 | 807.89 | 3/2⁻ |
| | | 9534 | 9 | 766.83 | (3/2)⁺ |
| 10308.6 | | 10301 | 100 | 0.0 | 7/2⁻ |
| 10310.0 | (3/2⁻) | 3580 | 35 | 6724 | |
| | | 3720 | 16 | 6584 | |
| 10310.0 | | 3921 | 57 | 6383 | |
| | | 4704 | 65 | 5600 | |
| | | 4795 | 41 | 5509 | |
| | | 5153 | 49 | 5151 | − |
| | | 5306 | 27 | 4998 | |
| | | 5348 | 47 | 4956 | |
| | | 5473 | 28 | 4831 | |
| | | 5502 | 57 | 4802? | |
| | | 5512 | 24 | 4792 | |
| | | 5614 | 30 | 4690 | |
| | | 5672 | 46 | 4631 | 1/2⁻,3/2⁻ |
| | | 5695 | 35 | 4609 | 1/2⁺ |
| | | 5751 | 19 | 4553 | 3/2⁺,5/2⁺ |
| | | 5829 | 8 | 4473 | |
| | | 5897 | 15 | 4408 | |
| | | 6206 | 20 | 4099 | |
| | | 6220 | 42 | 4085 | 3/2⁻ |
| | | 6286 | 41 | 4019 | |
| | | 6577 | 15 | 3728 | |
| | | 6728 | 27 | 3576 | |
| | | 7014 | 26 | 3290 | |
| | | 7042 | 51 | 3262 | |
| | | 7099 | 12 | 3202 | 1/2⁻,3/2⁻ |
| | | 7171 | 42 | 3131 | − |
| | | 7363 | 61 | 2941 | |
| | | 7395 | 53 | 2909 | |
| | | 7468 | 41 | 2836 | 1/2⁻,3/2⁻ |
| | | 7494 | 84 | 2810 | 1/2⁻,3/2⁻ |
| | | 7654 | 20 | 2650 | |
| | | 7776 | 18 | 2529.4 | 1/2⁺ |
| | | 7805 | 27 | 2499.4 | 7/2⁻ |
| | | 8098 | 84 | 2207.5 | (5/2⁻,7/2⁻) |
| | | 8302 | 54 | 2002.3 | 3/2⁺ |
| | | 8507 | 36 | 1797.6 | 3/2,5/2⁻,7/2⁻ |
| | | 8900 | 42 | 1404.4 | 5/2⁺ |
| | | 8914 | 100 | 1391.3 | 1/2⁺ |
| | | 9008 | 91 | 1297.12 | 5/2⁻ |
| | | 9496 | 97 | 807.89 | 3/2⁻ |
| | | 9537 | 47 | 766.83 | (3/2)⁺ |
| | | 10303 | 66 | 0.0 | 7/2⁻ |





From ENSDF

$^{47}_{21}Sc_{26}$-10

$\gamma(^{47}Sc)$ (continued)

† From ($\alpha$,p$\gamma$) for levels below 10 MeV, except where noted. Primary $\gamma'$s for levels above 10 MeV from (p,$\gamma$).
‡ From $^{47}$Ca $\beta^-$ decay.
# From ($^{14}$C,p2n$\gamma$).
@ Additional information 2.
& Placement of transition in the level scheme is uncertain.





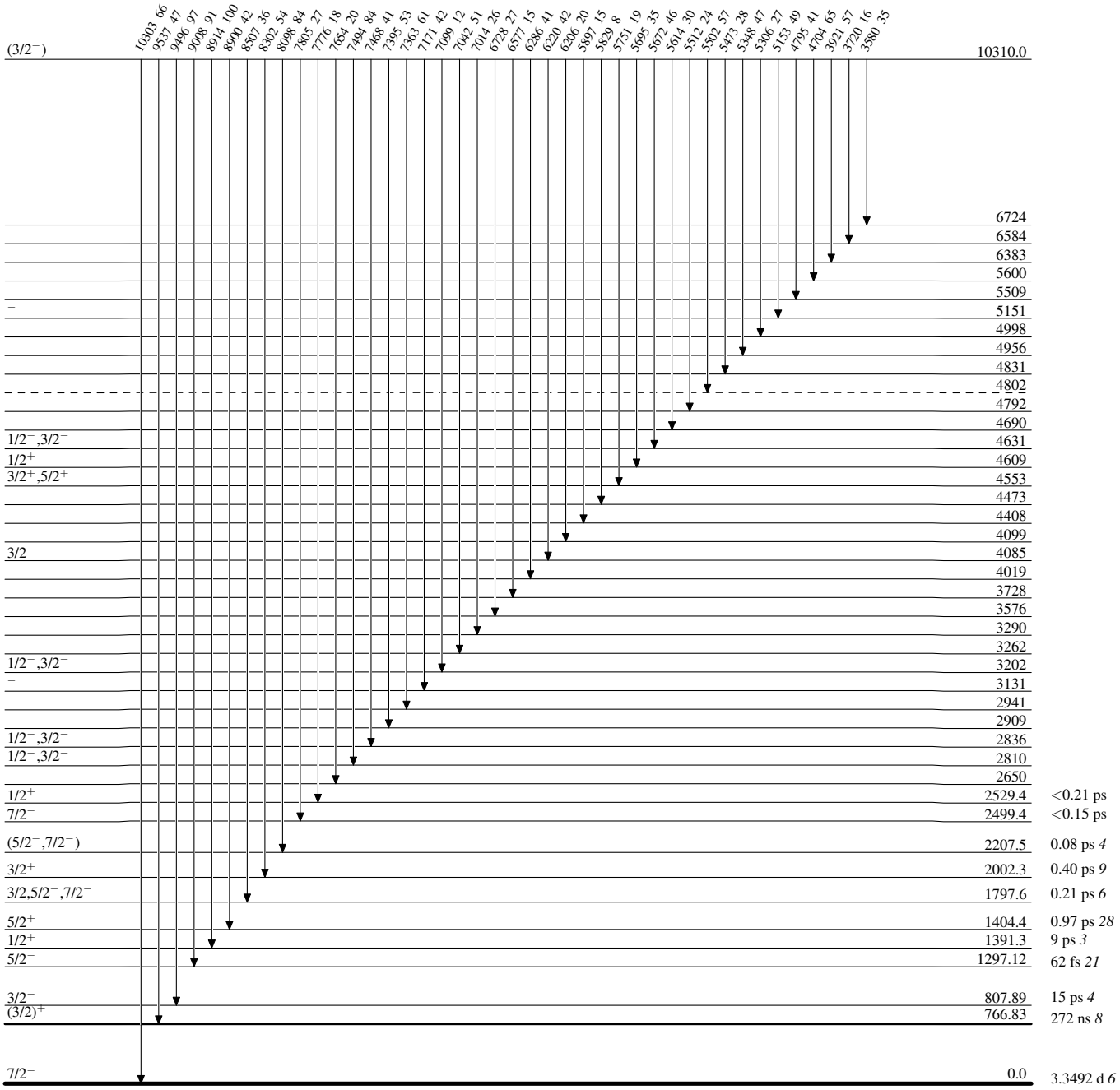
From ENSDF

$^{47}_{21}Sc_{26}$-11

## Adopted Levels, Gammas

### Level Scheme

Intensities: Relative photon branching from each level

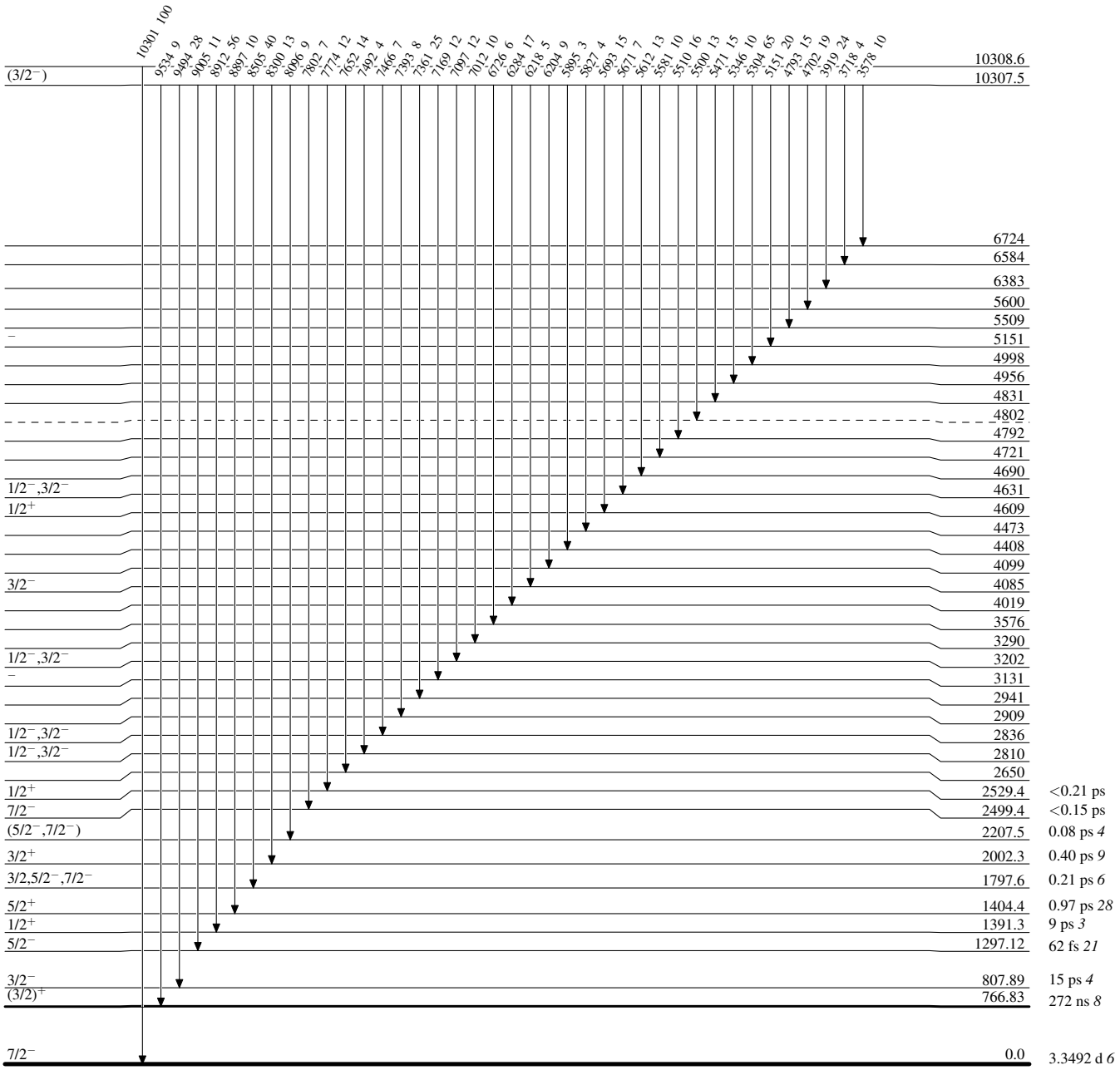



$^{47}_{21}Sc_{26}$

## Adopted Levels, Gammas

### Level Scheme (continued)

Intensities: Relative photon branching from each level




$^{47}_{21}Sc_{26}$

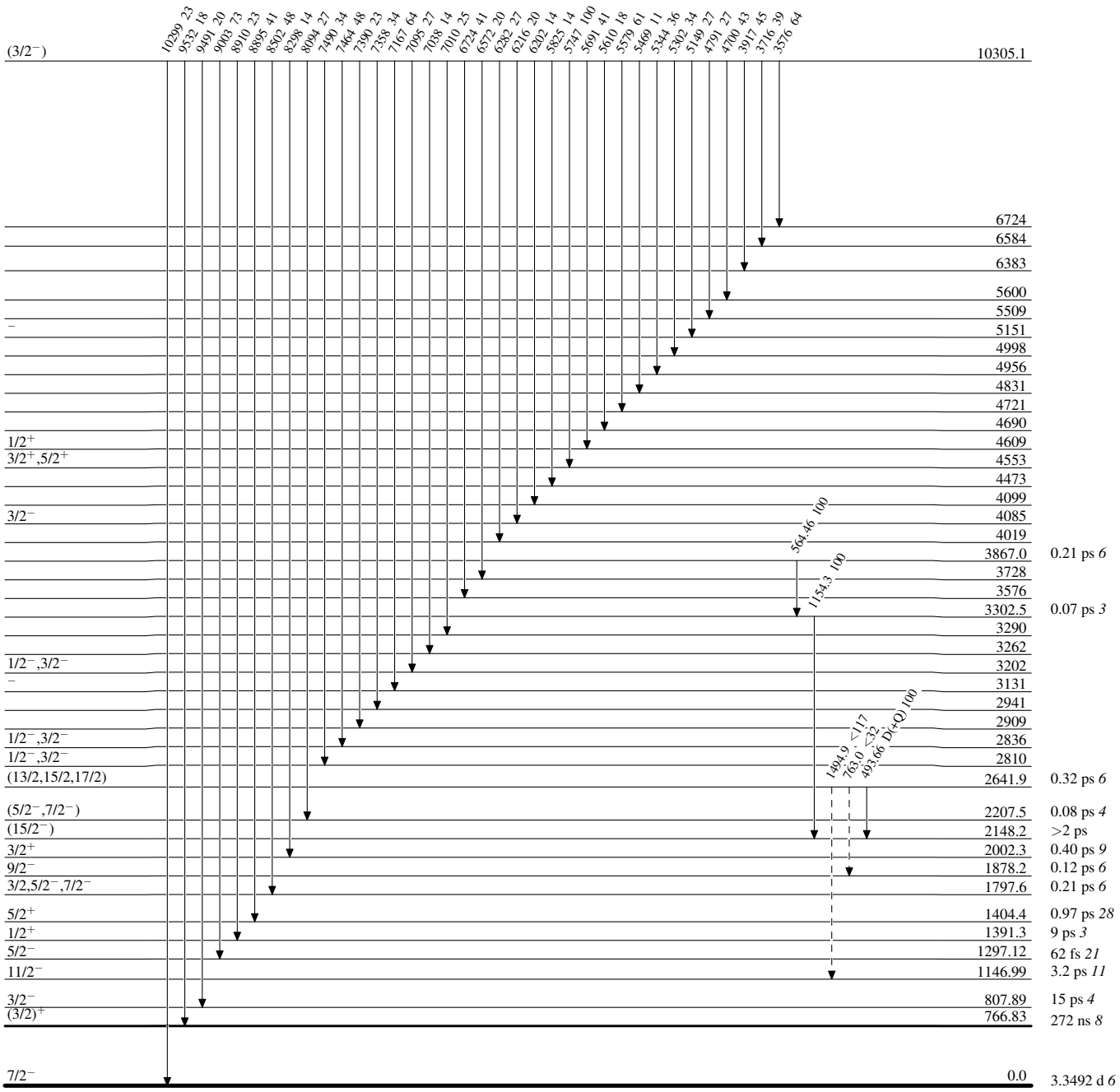
**Adopted Levels, Gammas**

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)




$^{47}_{21}Sc_{26}$

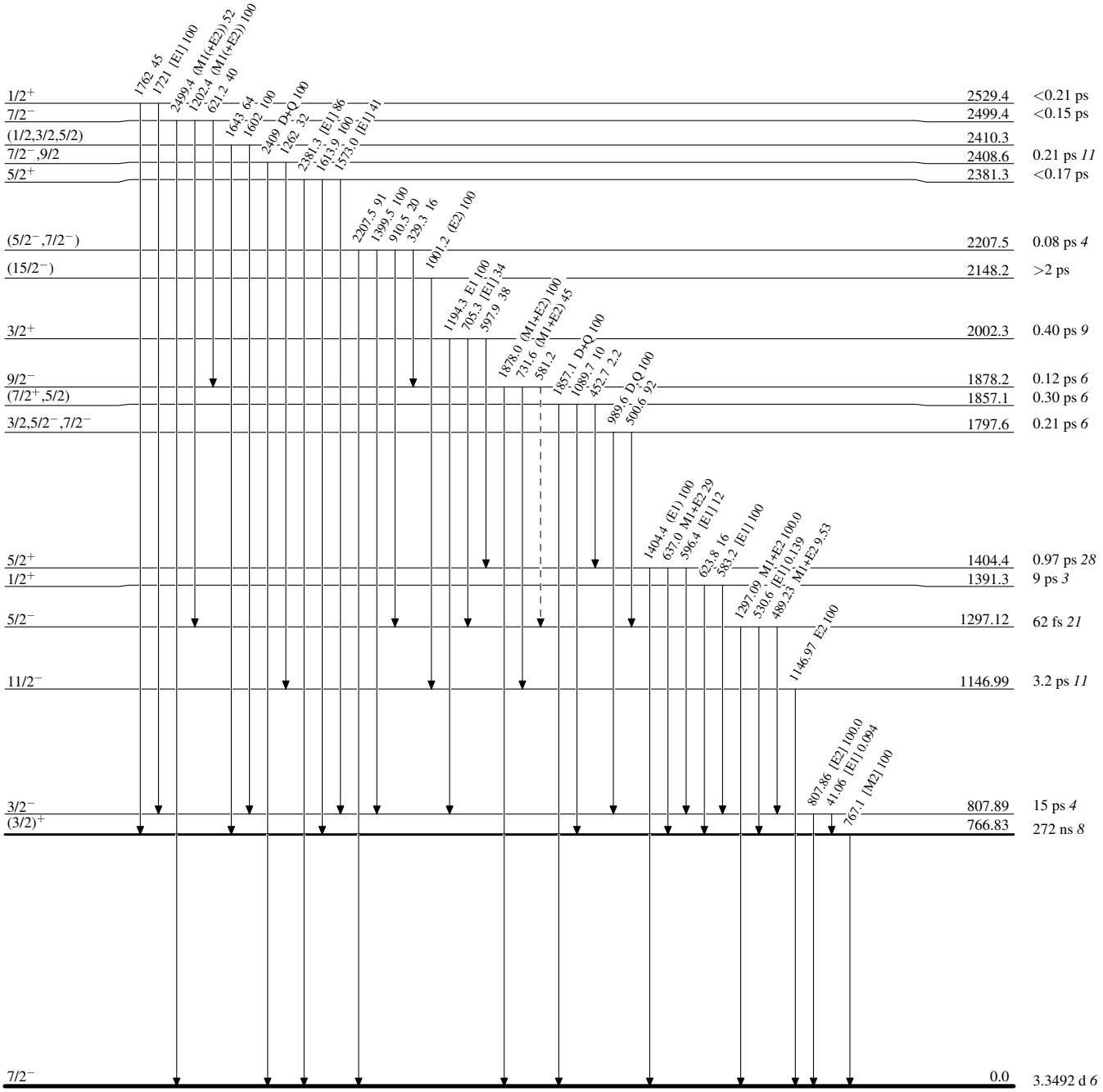
## Adopted Levels, Gammas

Legend

### Level Scheme (continued)

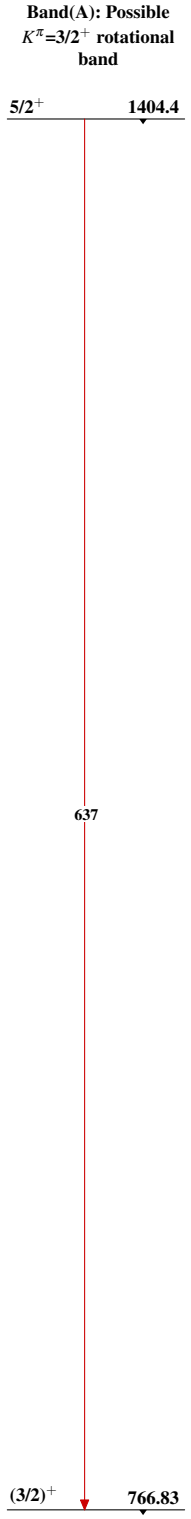
Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)




$^{47}_{21}Sc_{26}$

## Adopted Levels, Gammas




$^{47}_{21}Sc_{26}$